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# Delaware College

## REQUIREMENTS FOR ADMISSION



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## REQUIREMENTS FOR ADMISSION

### INTRODUCTORY

The Faculty of Delaware College with the approval of the Board of Trustees have made several changes in the requirements for entrance to the various courses leading to degrees.

The Entrance Committee presents an outline of these requirements to the high school teachers in an effort to secure more uniform preparation of the candidates applying for admission. The Committee urges that the candidate should complete a full high school course. He will then be more mature and better able to handle the required work, than if he enters with conditions. Two-thirds of the failures in the Freshman class are from those who have not completed a high school course.

*The main weaknesses in the preparatory work of our students are: (1) in English, in spelling, grammar, and sentence structure; (2) in Algebra, in the solution of literal equations and the interpretation of results obtained; (3) in United States History and Civics, in the lack of original thinking and inability to correlate events and causes; (4) in Latin, in the omission of Cicero or Vergil from the high school curriculum.*

### COURSES OF STUDY

The following courses of study leading to degrees are offered by the College:

1 The *Course in Arts and Science* leads to the degree of B. A. for such candidates as may be qualified for admission in Latin, and to the degree of B. S. in the case of all others who complete this course. It offers a liberal training and by a system of Electives it enables the candidate to choose between an education in which the Classics are emphasized or one in which the modern studies have a higher place.

2 The *Course in Agriculture* leads to the degree of B. S. in Agriculture. Besides there are offered special courses in Agriculture not leading to a degree.

3 The *Courses in Engineering* include instruction in Civil,

Mechanical, and Electrical Engineering, and lead to the degree of B. S. in the course pursued.

In some of the courses a considerable degree of freedom in the choice of subjects is permitted, with the view of enabling students who have determined upon their life work so to shape their undergraduate course as best to prepare them for the work of their chosen calling, and of enabling others to seek means of culture especially fitted to their tastes, needs, and capabilities. The very nature of some of the courses, notably those in *Engineering*, precludes any great amount of elective freedom, but in the Senior years of these courses opportunity is offered for advanced study along special lines. In the assignment of the honors of the graduating class the courses of study are of equal rank.

### GENERAL REQUIREMENTS

Candidates for admission to the Freshman Class must be at least sixteen years of age.

In all cases they must give satisfactory evidence of good moral character; and, when coming from other institutions, they must present certificates of honorable dismissal.

A candidate who offers a certificate from a recognized school showing that he has completed the requirements for entrance as given below will be admitted provisionally to the Freshman class. A candidate who does not offer credentials will be examined upon the studies required for entrance.

The subjects for admission are to be selected from the following list of studies according to the course the candidate wishes to pursue. The endeavor has been to equalize the amount of preparation in the entrance requirements of the several courses.

#### GROUP A

- 1 English
  - Composition
  - Literature
- 2 Mathematics
  - (a) Algebra through Quadratics
  - (b) Plane Geometry

#### GROUP B

- 5 Latin
- 6 Greek
- 7 History
  - (a) Ancient
  - (b) English
  - (c) Mediaeval and Modern

- |  |  |
|--|--|
| 3 History<br>United States<br>Civil Government of the<br>U. S. | 8 Mathematics<br>(c) Solid Geometry<br>(d) Advanced Algebra<br>(e) Plane Trigonometry                                      |
| 4 Modern Language<br>German or French                          | 9 Natural Science<br>(a) Physics<br>(b) Chemistry<br>(c) Physiology<br>(d) Botany<br>(e) Zoology<br>(f) Physical Geography |

Entrance requirements to the several courses of study:

- |                                |   |
|--------------------------------|---|
| <i>Arts and Science Course</i> | Group A<br>Group B, 7 a or b, and four other subjects, of which one must be Latin, if the candidate is matriculating for the B. A. degree |
| <i>Agricultural Course</i>     | Group A<br>Group B, 9 a or c and f, and three other subjects  |
| <i>Engineering Courses</i>     | Group A<br>Group B, 8 c, 9 a, and two other subjects  |

In the *Arts and Science Course* and the *Agricultural Course*, when Latin or Greek is offered from Group B, each counts as two subjects.

#### ADMISSION TO THE SPECIAL COURSES IN AGRICULTURE

Students will be admitted to any one of these courses without the preparation necessary for the work of a regular course. Any one with a good common school education may enter, as the work is largely of a practical nature. Young men who intend to undertake the working of land will do well to receive instruction in some of the applications of scientific and practical farming. The opportunities of the well trained farmer were never brighter than to-day.

## ENTRANCE TO ADVANCED STANDING

*Candidates for entrance to an advanced class in any of the courses are required to sustain examination upon all studies of the course up to the point at which they seek admission.*

## CHOICE OF STUDY

Students may, with the approval of their parents or guardians, enter any one of the departments; or they may select such studies as they are prepared to pursue, when circumstances make it advisable not to enter a regular course. Except in the case of mature students who may desire to do special work in any department, it is strongly urged that all applicants for admission prepare themselves for undertaking the work of a regular course. Opportunity is offered students of sufficient maturity and preparation, who do not wish to take any of the regular courses, to pursue special studies determined by some definite end in view.

Changes from one course to another may be made only at the opening of a term, with the approval of the Faculty and the consent of the parent or guardian.

Each special student is required to have at least fifteen recitations, or their equivalent, weekly, unless specially excused for cause.

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DETAILED EXPLANATION OF THE REQUIREMENTS FOR ADMISSION

## ENGLISH—GROUP A (1)

*All candidates for entrance, whether graduates of high schools or no, must undergo an examination in English Composition. Certificates will be accepted only for the Literature which is supposed to be read and studied. These certificates must state definitely which books have been read and which read and studied. An amount of reading and study in general literature equivalent to the required books will be accepted if the certificates of applicants are properly signed by the principals or other teachers in the schools.*

For adequate preparation in English, candidates for entrance should have had four years' work in composition and literature.



During each year of the high school course, pupils should be required to write frequent compositions and to read and study a reasonable amount of good literature. The most helpful part of the work in composition should be the *careful detailed criticism of themes by the teacher* and the subsequent *rewriting of them by the pupil*. General criticism avails little; criticism of errors in spelling, grammar, punctuation, and sentence structure is what high school students need most. In literature much outside reading should be required throughout the course. The few books specified for study should be thoroughly mastered; they should preferably be studied in the third or fourth year.

Teachers of English in the high schools of the state are advised to consult "The High School Course in English," Delaware College Bulletin, vol. 4, new series, No. 4. It will be sent on request.

Beginning with 1913 the examination in English will be based on the recommendations of the Conference on Uniform Entrance Requirements in English which met February 22, 1909. These recommendations are as follows:

Preparation in English has two main objects: (1) command of correct and clear English, spoken and written; (2) ability to read with accuracy, intelligence, and appreciation.

#### ENGLISH GRAMMAR AND COMPOSITION

The first object requires instruction in grammar and composition. English grammar should ordinarily be reviewed in the secondary school; and correct spelling and grammatical accuracy should be rigorously exacted in connection with all written work during the four years. The principles of English composition governing punctuation, the use of words, paragraphs, and the different kinds of whole composition, including letter-writing, should be thoroughly mastered; and practice in composition, oral as well as written, should extend throughout the secondary school period. Written exercises may well comprise narration, description, and easy exposition and argument based upon simple outlines. It is advisable that subjects for this work be taken from the student's personal experience, general knowledge, and studies other than English, as well as from his reading in literature. Finally, special instruction in language and composition should be accompanied by concerted efforts of teachers in all branches to cultivate in the stu-

dent the habit of using good English in his recitations and various exercises, whether oral or written.

#### LITERATURE

The second object is sought by means of two lists of books, headed respectively *reading* and *study*, from which may be framed a progressive course in literature covering four years. In connection with both lists, the student should be trained in reading aloud and be encouraged to commit to memory some of the more notable passages both in verse and in prose. As an aid to literary appreciation, he is further advised to acquaint himself with the most important facts in the lives of the authors whose works he reads and with their place in literary history.

*a* **READING** The aim of this course is to foster in the student the habit of intelligent reading and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of what he reads.

With a view to large freedom of choice, the books provided for reading are arranged in the following groups, from which at least ten units\* are to be selected, two from each group.

\*Each unit is set off by a semicolon.

I The *Old Testament*, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel together with the books of Ruth and Esther; the *Odyssey*, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII; the *Iliad*, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI; Vergil's *Aeneid*. The *Odyssey*, *Iliad*, and *Aeneid* should be read in English translations of recognized literary excellence.

For any unit of this group a unit from any other group may be substituted.

II Shakspeare's *Merchant of Venice*; *Midsummer Night's Dream*; *As You Like It*; *Twelfth Night*; *Henry the Fifth*; *Julius Caesar*.

III Defoe's *Robinson Crusoe, Part I*; Goldsmith's *Vicar of Wakefield*; either Scott's *Ivanhoe*, or Scott's *Quentin Durward*; Hawthorne's *House of the Seven Gables*; either Dickens' *David*



*Copperfield*, or Dickens' *Tale of Two Cities*; Thackeray's *Henry Esmond*; Mrs. Gaskell's *Cranford*; George Eliot's *Silas Marner*; Stevenson's *Treasure Island*.

IV Bunyan's *Pilgrim's Progress*, Part I; *The Sir Roger de Coverley Papers* in *The Spectator*; Franklin's *Autobiography* (condensed); Irving's *Sketch Book*; Macaulay's *Essays on Lord Clive and Warren Hastings*; Thackeray's *English Humorists*; *Selections* from Lincoln, including at least the two Inaugurals, the Speeches in Independence Hall and at Gettysburg, the Last Public Address, and Letter to Horace Greeley, along with a brief memoir or estimate; Parkman's *Oregon Trail*; either Thoreau's *Walden*, or Huxley's *Autobiography* and selections from *Lay Sermons*, including the addresses on Improving Natural Knowledge, A Liberal Education, and A Piece of Chalk; Stevenson's *Inland Voyage* and *Travels with a Donkey*.

V Palgrave's *Golden Treasury* (*First Series*), *Books II and III*, with especial attention to Dryden, Collins, Gray, Cowper, and Burns; Gray's *Elegy in a Country Churchyard* and Goldsmith's *Deserted Village*; Coleridge's *Ancient Mariner* and Lowell's *Vision of Sir Launfal*; Scott's *Lady of the Lake*; Byron's *Childe Harold*, *Canto IV*, and *Prisoner of Chillon*; Palgrave's *Golden Treasury* (*First Series*), *Book IV*, with especial attention to Wordsworth, Keats, and Shelley; Poe's *Raven*, Longfellow's *Courtship of Miles Standish*, and Whittier's *Snow Bound*; Macaulay's *Lays of Ancient Rome* and Arnold's *Sohrab and Rustum*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Browning's *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of the French Camp*, *Hervé Riel*, *Pheidippides*, *My Last Duchess*, *Up at a Villa—Down in the City*.

NOTE The following ten books from the five groups are recommended:

*The Old Testament*; the *Odyssey*; Shakspeare's *As You Like It*, and *Julius Caesar*; Defoe's *Robinson Crusoe*, Part I; Scott's *Quentin Durward*; *Selections* from Lincoln; Macaulay's *Lord Clive and Warren Hastings*; Gray's *Elegy in a County Churchyard*; Goldsmith's *Deserted Village*; Byron's *Prisoner of Chillon*; Arnold's *Sohrab and Rustum*.

b STUDY This part of the requirement is intended as a nat-

ural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. For this close reading are provided a play, a group of poems, an oration, and an essay, as follows:

Shakspeare's *Macbeth*; Milton's *L'Allegro, Il Penseroso*, and *Comus*; either Burke's Speech on Conciliation with America or both Washington's Farewell Address and Webster's First Bunker Hill Oration; either Macaulay's *Life of Johnson* or Carlyle's *Essay on Burns*.

#### EXAMINATION

The first part of the examination will be upon ten units chosen, in accordance with the plan described earlier, from the lists headed *reading*; and it may include also questions upon grammar and the simpler principles of rhetoric, and a short composition upon some topic drawn from the student's general knowledge or experience. On the books prescribed for reading, the form of the examination will usually be the writing of short paragraphs on several topics which the candidate may choose out of a considerable number. These topics will involve such knowledge and appreciation of plot, character-development, and other qualities of style and treatment as may be fairly expected of boys and girls. In grammar and rhetoric, the candidate may be asked specific questions upon the practical essentials of these studies, such as the relation of the various parts of a sentence to one another, the construction of individual words in a sentence of reasonable difficulty, and those good usages of modern English which one should know in distinction from current errors.

The second part of the examination will include composition and those books comprised in the list headed *study*. The test in composition will consist of one or more essays, developing a theme through several paragraphs; the subjects will be drawn from the books prescribed for *study*, from the candidate's other studies, and from his personal knowledge and experience quite apart from reading. For this purpose the examiner will provide several subjects, perhaps five or six, from which the candidate may make his own selections. The test on the books prescribed for study will consist of questions upon their contents, form, and structure, and upon the meaning of such words, phrases, and allusions as may be necessary

to an understanding of the works and an appreciation of their salient qualities of style. General questions may also be asked concerning the lives of the authors, their other works, and the periods of literary history to which they belong.

#### HISTORY AND CIVIL GOVERNMENT—GROUP A (3), GROUP B (7 a, b, c)

1 *United States History*—One full year's work of high school grade is required in this subject. In connection with the study of history, some emphasis should be given to geography, and collateral reading should also be required.

Students should be trained to use their own judgment and resources in explaining the real meaning of events and movements studied.

The work must cover *the whole field of United States History*, and not merely the colonial and early national periods. It is advisable to study with some care the epoch from the close of the Civil War to the present.

Every school should have at least a few well selected books for reference work and also a good wall map.

2 *Ancient History, or English History*—Either of these subjects should have been pursued for *one whole year* of the high school course, with the usual number of recitation periods per week.

Not only should the work in geography and collateral reading continue, but the student is expected also to learn something about the handling of books. Reasonably systematic habits of work and of thought should be insisted upon throughout this course.

Good texts in both English and American History are available. It is believed that Myers General History—a one volume text covering the whole field of history—should as soon as possible be discarded for a special volume on Ancient History or Mediaeval and Modern History, as the case may be. A few reference books are essential in both these courses.

3 *Civil Government*—Whether given separately or in connection with United States History this work must be the equivalent of a regular *high school course* pursued for a *full half year*. From now on the entrance examinations in United States History and Civics will be given separately, as distinct subjects. The regular study of a text book in Civics is necessary to meet this requirement.

The work should embrace a study of our government, local, state, and national, and should pay much attention to the actual practices and workings of government to-day, though the study of the Constitution should not be neglected.

#### MATHEMATICS—GROUP A (2), GROUP B (8 a, b, c)

The requirements in mathematics are the same as formerly—Algebra through quadratics and plane geometry completed are required for all courses leading to a degree; the additional subject of solid geometry is required of students applying for courses in engineering. A candidate will not be admitted to a course leading to a degree unless he has completed the requirements in algebra and plane geometry.

#### ALGEBRA

The work in Algebra includes the four fundamental operations with type forms in multiplication and division emphasized, factoring, highest common factor, least common multiple, fractions, fractional equations, simultaneous equations of the first degree, evolution, theory of exponents, radicals and equations involving radicals, quadratic equations of one unknown quantity, simultaneous quadratics, and solution of problems under the various heads.

Special emphasis should be placed on factoring and the solution of literal equations. Thorough analysis of the result of such literal equations as the type form

$$\begin{aligned} ax + by &= m \\ cx + dy &= n \end{aligned}$$

and

$$ax^2 + bx + c = 0$$

should be given. The relations between co-efficients and the effect upon the result of changes in them should be made clear. These relations especially in the discriminant of the quadratic equation

$$V \overline{b^2 - 4ac}$$

need to be thoroughly understood. In the solution of problems, a clear precise statement of the data in the problem should be insisted upon, before allowing the pupil to solve the problem. Also the graph in the solution of simultaneous equations, especially simultaneous quadratics, will assist greatly in the interpretation of the roots and will be a help in more advanced mathematics.



## PLANE GEOMETRY

The usual theorems and constructions of good elementary text books fill the requirement in this subject. Emphasis should be laid on tests for parallel lines, for equality of figures, for similarity of figures; the measurement of angles, the relation between parts of a plane triangle and the area of plane figures. An important part of the work should be solution of original exercises, including loci and numerical problems. Accuracy and acuteness in thinking are desired more than mere geometrical knowledge.

## SOLID GEOMETRY

The usual theorems and constructions of good text books; relations of lines and planes; properties of prisms, pyramids, cylinders, cones; the sphere and spherical triangle. Emphasis should be placed on problems of mensuration, loci, and the relations of parts in spherical triangles and polygons.

## ADVANCED ALGEBRA

Convergency and Summation of Series, Binomial Theorem, Permutations and Combinations, Undetermined Coefficients, Logarithms, Theory of Equations, and Determinants.

## PLANE TRIGONOMETRY

Trigonometric ratios and their relations; derivation of general ratios; proofs of general formulas, especially trigonometric functions of sum of two angles, difference of two angles, and multiple angles; proving of identities; use of logarithms and solution of right and oblique triangles.

## PHYSICS—GROUP B (9 a)

Elementary Physics is required of all candidates for the courses in Engineering and is optional for admission into any other course. Any of the approved text-books used in the schools will furnish suitable preparation. Daily recitations and laboratory exercises for one year will satisfy this requirement.

## LATIN—GROUP B (5)

The requirements in Latin are those recommended by the Commission on College Entrance Requirements.



## AMOUNT AND RANGE OF READING REQUIRED

1 The Latin reading required of candidates for admission to College, without regard to the prescription of particular authors and works, shall not be less *in amount* than Caesar, *Gallic War*, I-IV; Cicero, the orations against Catiline, for the Manilian Law, and for Archias; Vergil, *Aeneid*, I-VI.

2 The amount of reading specified above shall be selected by the schools from the following authors and works: Caesar (*Gallic War* and *Civil War*) and Nepos (*Lives*); Cicero (orations, letters, and *De Senectute*) and Sallust (*Catiline* and *Jugurthine War*); Vergil (*Bucolics*, *Georgics*, and *Aeneid*) and Ovid (*Metamorphoses*, *Fasti*, and *Tristia*.)

## SUBJECTS AND SCOPE OF THE EXAMINATION

1 *Translation at Sight*. Candidates will be examined in translation at sight of both prose and verse. The vocabulary, construction, and range of ideas of the passage set will be suited to the preparation secured by the reading indicated above.

2 *Prescribed Reading*. Candidates will be examined also upon the following prescribed reading: Cicero, orations for the Manilian Law and for Archias, and Vergil, *Aeneid*, I, II, and either IV or VI at the option of the candidate, with questions on subject-matter, literary and historical allusions, and prosody. Every paper in which passages from the prescribed reading are set for translation will contain also one or more passages for translation at sight; and candidates must deal satisfactorily with both these parts of the paper; or they will not be given credit for either part.

3 *Grammar and Composition*. The examination in grammar and composition will demand thorough knowledge of all regular inflections, all common irregular forms, and the ordinary syntax and vocabulary of the prose authors read in school, with ability to use this knowledge in writing simple Latin prose. The words, constructions, and range of ideas called for in the examinations in composition will be such as are common in the reading of the year, or years, covered by the particular examination.

## SUGGESTIONS CONCERNING PREPARATION

Exercises in translation at sight should begin in school with the first lessons in which Latin sentences of any length occur, and

should continue throughout the course with sufficient frequency to insure methods of work on the part of the student. From the outset particular attention should be given to developing the ability to take in the meaning of each word—and so, gradually, of the whole sentence—just as it stands; the sentence should be read and understood in the order of the original, with full appreciation of the force of each word as it comes, so far as this can be known or inferred from that which has preceded and from the form and the position of the word itself. The habit of reading in this way should be encouraged and cultivated as the best preparation for all the translating that the student has to do. No translation, however, should be a mechanical metaphrase. Nor should it be a mere loose paraphrase. The full meaning of the passage to be translated, gathered in the way described above, should finally be expressed in clear and natural English.

A written examination cannot test the ear or tongue, but proper instruction in any language will necessarily include the training of both. The school work in Latin, therefore, should include much reading aloud, writing from dictation, and translation from the teacher's reading. Learning suitable passages by heart is also very useful, and should be more practised.

The work in composition should give the student a better understanding of the Latin he is reading at the time, if it is prose, and greater facility in reading. It is desirable, however, that there should be systematic and regular work in composition during the time in which poetry is read as well; for this work the prose authors already studied should be used as models.

The Roman method of pronunciation is used.

#### GREEK—GROUP B (6)

Xenophon, *Anabasis*, Books I-IV. Homer, *Iliad*, Books I-III. A thorough knowledge of Greek Grammar.

#### MODERN LANGUAGES—GROUP A (4)

All students, with the exception of those entering the Two Year Course in Agriculture, are required to present either German or French. Preparation for this requirement will be attained most advantageously by following the recommendations printed below.

## GERMAN—ELEMENTARY

1, Careful drill in pronunciation; 2, the memorizing and frequent repetition of easy colloquial sentences; 3, drill upon the rudiments of grammar, that is, upon the inflection of the articles, of such nouns as belong to the language of every-day life, of adjective pronouns, weak verbs and the more usual strong verbs; also upon the use of the more common prepositions, the simpler uses of the modal auxiliaries, and the elementary rules of syntax and word order; 4, abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; 5, the reading of from 100 to 125 pages of graduated texts.

## FRENCH—ELEMENTARY

1, Careful drill in pronunciation; 2, the rudiments of grammar, including the inflection of the regular and more common irregular verbs, the plural nouns, the inflection of adjectives, participles, and pronouns; the use of the personal pronouns, common adverbs, prepositions, and conjunctions; the order of words in the sentence, and the elementary rules of syntax; 3, abundant easy exercises, designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; 4, the reading of from 100 to 125 pages of graduated texts.

Two years ago a circular letter was sent out to the Principals of the high schools explaining the situation in regard to entrance French or German. The results of that letter were very satisfactory; so much so that this year there was a very small number of students who entered with a condition in Modern Language.

Principals of the high schools are urged to make a special effort to see that students present at least one Modern Language, in view of the fact that those who do not will be behind in this work and will be compelled to pursue the study of Modern Language for one year after those who presented it have finished the required work in this subject. This will prove a serious handicap, especially to students in the Agricultural and Engineering courses.

## SCIENCES—GROUP B ( b, c, d, e, f)

## CHEMISTRY

Acceptable work in Chemistry is a one-year course in Inorganic Chemistry, such as that given in "First Principles of Chemistry," Browlee, Lincoln and Walton's Inorganic Chemistry, or similar text-book. Laboratory practice should be included and the laboratory note-book should be submitted for inspection.

## PHYSIOLOGY

In addition to the ordinary grammar school course in hygiene covering the effects of narcotics and stimulants on the human system, the candidate should have taken at least one half year, five hours a week, of physiology and hygiene in the high school.

This course should include enough anatomy to give the student a good foundation for the study of physiology and hygiene.

It should cover the general structure and arrangement of the human body and its microscopic and chemical composition. The study of the skeleton should be sufficiently thorough to give the student a good general idea of bones, joints, and the relations between the bones and joints and the muscles as well as the structure and composition of the bones. The muscular system and its relation to the various other systems and functions of the body, the digestive, circulatory, respiratory, and nervous systems should all be studied in a way to give the student a clear idea of their structure and function and of their interdependence for the maintenance of health.

The questions of nutrition, excretion, respiration, and the special senses will naturally be taken up in proper order.

There are several of the briefer text books which cover this ground fairly satisfactorily.

## BOTANY

The time to be devoted to this work should be 5 periods per week throughout the year; recitation or lecture, 1 period; laboratory work, 4 periods, 2 sessions.

The work to be covered is approximately as follows; The seed and its germination; development and morphology of the seedling; roots, stems, and leaves: the flower and fruit of the higher seed plants.



These topics should be followed by a briefer study of a few of the typical algae and fungi, one of the moss plants, and a fern.

In the spring a few weeks should be devoted to tracing a few of the typical monocotyledonous and dicotyledonous plants.

### ZOOLOGY

The time to be devoted to work, etc., is the same as for Botany. Work to be covered is approximately as follows: A brief study of a few typical Protozoa, Porifera, Coelenterata, Echinodermata, Vermes, and Arthropoda. Following this work on the invertebrates, a few of the typical vertebrates should be carefully studied, e. g. a fish, frog, snake or turtle, bird and mammal.

### PHYSICAL GEOGRAPHY

At least one-half year's work of high school grade, of five recitations per week should be given. Emphasis should be laid on the form and structure of the earth, surface conformations and characteristics, and meteorology.

### SPECIMEN ENTRANCE EXAMINATIONS

#### ENGLISH—COMPOSITION AND LITERATURE

1 Write a letter of inquiry to the President of Delaware College, stating what course you wish to enter and your preparation, and asking for information or advice about examinations, living expenses, regulations for attendance, etc.—100 words.

2 Write a composition of at least 150 words on the national political situation.

3 In a composition of 300 words or more, tell about the most interesting experience or experiences of your high school life.

4 In the following paragraph—

(a) Parse the italicized words

(b) Indicate whether the sentences are simple, complex, or compound

(c) Explain the marks of punctuation in the last sentence

(d) Point out all dependent clauses

(1) "However, the backwoodsmen as a class neither built towns nor loved to dwell *therein*. (2) They were to be seen at their best in the vast, interminable forests *that* formed their chosen home.



(3) They won and kept their lands by force, and ever lived either at war or in dread of war. (4) Hence they settled always in groups of several *families* each, all banded together for mutual protection. (5) Their red foes were strong and *terrible, cunning* in council, dreadful in battle, merciless beyond belief in victory. (6) The men of the border did not overcome and dispossess cowards and weaklings; they marched forth to spoil the stout-hearted and to take for a prey the possessions of the men of might. (7) Every acre, every rood of ground which they claimed had to be cleared by the axe and held with the rifle. (8) Not only was the *chopping down* of the forests the first preliminary to cultivation, but it was also the surest means of subduing the Indians, to whom the unending stretches of choked woodland were an impenetrable cover behind which to move unseen, a shield in making assaults, and a strong tower of defence in repelling counter-attacks. (9) In the conquest of the west the backwoods axe, shapely, well-poised, with long haft, and light head, was a servant hardly standing second even to the rifle; the two were the national weapons of the American backwoodsman and in *their* use he has never been excelled."

5 (a) Discuss fully the part which the witches play in "Macbeth." (b) Say what you can about the character of Banquo. (c) Describe the most impressive scene in the play. (d) Quote any five consecutive lines.

6 (a) Present briefly Burke's discussion of the temper and character of the American people.

(b) What were the three possible methods of dealing with America and which does Burke advocate?

7 (a) What pleasures are mentioned in "Il Penseroso"?

(b) Describe Comus and his crew. (c) What is the purpose of "Lycidas"?

8 (a) What two units did you select for reading from Group V, 19th Century poetry. (b) Say what you can about the life of the author of one of these, his works, and his style. (c) Give the subject matter of one poem.

9 (a) What plays from Group II (Shakspeare) did you read for this examination? (b) Mention three important characters of each play and tell what part each takes in the play. (c) Describe the most interesting scene in one of the plays.

10 Comment briefly on the contents of one of the volumes of

essays or travel from Group IV read for this examination. A clear, definite explanation is required.

#### UNITED STATES HISTORY

1 Discuss the geographical features of the United States and show how they have influenced our history.

2 Trace the steps in the building up of *either* the French or the Spanish empire in America.

3 Sketch the history of Massachusetts Bay Colony and explain its relations to its neighbors.

4 Explain fully the causes of the American Revolution. Give an account of the Burgoyne campaign, and its results.

5 Write briefly on each of the first three presidents of the United States.

6 Give a full account of the administration of Andrew Jackson.

7 Write at length on the *causes* and results of the Civil War.

8 With what events are the following men connected:  
(a) Alexander Hamilton (b) J. C. Calhoun (c) Jefferson Davis  
(d) William Sumner (e) Grover Cleveland (f) William McKinley  
(g) Samuel J. Tilden (h) Caesar Rodney (i) Judge George Gray.

9 What text in United States history did you study? What reference books did you use, and to what extent? Where did you do this work?

#### CIVICS

1 What is meant by (a) civics (b) sovereignty (c) federal system (d) representative government (e) naturalization (f) states rights (g) habeas corpus (h) registration (i) electors (j) Australian ballot (k) Gerrymander (l) initiative, referendum, and recall.

2 Give a full account of a presidential campaign and election.

3 Trace carefully all the successive steps by which a bill may become a law of the United States.

4 Discuss the composition, powers, and duties of the Supreme Court.

5 Name all you can of the state officials of Delaware. Explain the duties of each.

6 What text in civics did you study? What reference books did you use? Where did you do this work?

## ALGEBRA

1 Factor the quantities:

$$(a) 5ax^9 - 5a$$

$$(b) ax^2 - cx - | - ax - c$$

$$(c) x^2 - | - 4x - 45$$

$$(d) 1 - a^2 + 2ab - b^2$$

2 Reduce to simplest forms:

$$(a) \frac{x}{2} - \frac{1}{2} [2x - 5 \{ 3x + 2(x - 5) \} ] - (2 - 3x)$$

$$(b) \frac{1}{1 + \frac{1}{x+1}}$$

3 Solve:

$$(a) \begin{cases} ax + by = m \\ cx - by = n \end{cases}$$

$$(b) \frac{5x-6}{10} - \frac{9-10x}{7} = \frac{4x-7}{35}$$

4 When 7 is subtracted from both the numerator and denominator of a fraction, the result is  $\frac{1}{2}$ ; if the numerator and denominator are each increased by 2, the fraction becomes  $\frac{4}{5}$ . What is the fraction?

5 (a) Solve  $ax^2 + bx + c = 0$ , and tell under what conditions the roots are; (1) equal, (2) imaginary.

(b) For what values of  $K$  will

$$2x^2 - 4x - 2k + 3 = 0$$

give equal roots.

6 Find the square root of

$$9x^6 - 12x^5 + 22x^4 + x^2 + 12x + 4,$$

and the cube root of

$$27a^6 - 54a^5b + 9a^4b^2 + 28a^3b^3 - 3a^2b^4 - 6ab^5 - b^6$$

7 A merchant purchased a quantity of cloth for \$42 and after selling all except 9 yds. at 20 cents advance, found he had just realized his purchase money. How many yards did he buy and what was the price per yard paid?

## PLANE GEOMETRY

1 Prove: Two triangles are equal if the three sides of one are equal respectively to the three sides of the other. State in what ways triangles are known to be equal.

2 Prove: An inscribed angle is measured by one-half the intercepted arc. (3 cases).

3 Prove: In an oblique triangle, the square of the side opposite an acute angle is equal to the sum of the squares of the other two sides, diminished by twice the product of one of those sides by the projection of the other side upon it.

4 Prove: Two mutually equi-angular triangles are similar. State the other ways in which triangles are known to be similar.

5 Prove: The areas of two similar triangles are to each other as the squares of any two homologous sides.

6 Prove: The area of a circle is equal to one-half the product of its circumference by its radius.

7 Do two of the following:

(a) A circle has a radius of 5 inches; find the circumference, the area, and the side of the inscribed square.

(b) A trapezoid has bases 18 and 10 inches respectively and altitude 6 inches; find its area and the altitude of equivalent triangle with base of 20 inches.

(c) In a circle with radius 13 inches, find length of a chord 5 inches from the centre and the length of a tangent to the circle from a point 17 inches from the centre of the circle.

8 Give construction and proof of two of the following:

(a) To divide a line proportional to any number of given lines.

(b) To inscribe a circle in a given triangle.

(c) To construct a square equivalent to a given parallelogram.

## SOLID GEOMETRY

I Prove: If a straight line is perpendicular to each of two other straight lines at their intersection it is perpendicular to the plane of those lines.

II Prove: If 2 straight lines are cut by parallel planes their corresponding segments are proportional.

III Prove: The sum of any two face angles of a trihedral angle is greater than the 3d face angle.

IV Prove: The volume of a triangular pyramid is equal to  $\frac{1}{3}$  the product of its base by its altitude.

V Prove: In two polar triangles each angle of the one is the supplement of the opposite side of the other.

VI Prove: The surface of a sphere is equivalent to 4 times the area of a great circle.

VII Find: (a) The surface and volume of a sphere, radius 10 in., and the area of a triangle on given sphere whose angles are  $38^\circ$ ,  $114^\circ$ , and  $88^\circ$  respectively.

(b) The convex surface, and volume of the frustum of a cone, upper base, 10 in. diameter, lower base, 18 in. diameter, and altitude, 5 inches.

#### PHYSICS

1 Define elasticity, ductility, adhesion, friction, refraction, spectrum, latent heat, magnetism, galvanometer.

2 Give the three laws of Newton and give the function of each.

3 What is a machine? Name the different simple machines. Describe one showing mechanical advantage.

4 A body falls freely under the action of gravity. If it starts from rest, determine its velocity, the space described, and its energy at the end of 10 seconds, the body weighing 128 lbs.

5 What is the "center of gravity"? Show by construction how to find the center of gravity of a rectangle; of a triangle.

6 Determine the specific gravity of (a) Galena, when a mass weighing 6.05 oz. in the air weighs 4.84 oz. in water. (b) Alcohol, when a flask of it weighs 780.5 grains; which when filled with water weighs 890 grains; the weight of the flask being 160 grams.

7 What is meant by the parallelogram of forces? by the resultant of forces?

Find the resultant of forces of 7 lbs. and 22 lbs.

(a) When they act in opposite directions.

(b) When they act in the same direction.

(c) When they act at right angles to each other.

#### CAESAR

1 Translate:—Caesar suos a proelio continebat, ac satis habebat in praesentia hostem rapinis, pabulationibusque prohibere. Ita dies circiter quindecim iter fecerunt, uti inter novissimum hostium agmen et nostrum primum non amplius quinque aut sex milia



bus passuum interesset. Interim cotidie Caesar Haeduos frumentum, quod essent publice polliciti, flagitare.

(a) Explain the case of proelio, milibus, passuum, Haeduos, frumentum.

(b) Explain the mood of interesset, flagitare.

(c) Decline hostem, dies, agmen, passuum, quod.

2 Translate: Quod ubi Caesar animadvertit, naves longas, quarum et species erat barbaris inusitatio et motus ad usum expeditior, paulum romoveri ab onerariis navibus et remis incitari et ad latus apertum hostium constitui atque inde fundis, sagittis, tormentis hostes propelli ac summoverti iussit; quae res magno usui nostris fuit.

3 Translate into Latin:—It is reported to Caesar that the soldiers are making a journey into the territory of the Santones that they may seize the royal power.

#### CICERO

1 Translate:—Nam profecto memoria tenetis Cotta et Torquato consulibus complures in Capitolio res de caelo esse percussas, cum et simulacra deorum depulsa sunt et statuæ veterum hominum deiectae et legum aera liquefacta et tactus etiam ille qui hanc urbem condidit Romulus, quem inauratum in Capitolio, parvum atque lactantem, uberibus lupinis inhiantem fuisse meministis.

Give the principal parts of tenetis, depulsa, tactus, condidit, fuisse, meministis.

2 Translate:—Etenim omne instrumentum, omnis opera atque quaestus frequentia civium sustentatur, alitur otio; quorum si quaestus oclusis tabernis minui solet, quid tandem incensis futurum fuit?

3 Translate:—Satis mihi multa verba fecisse videor, quare esset hoc bellum genere ipso necessarium, magnitudine periculosum. Restat ut de imperatore ad id bellum deligendo ac tantis rebus praeficiendo dicendum esse videatur.

Explain each subjunctive in this passage.

#### VERGIL

1 Translate:

At pius Aeneas per noctem plurima volvens,  
ut primum lux alma data est, exire locosque

explorare novos, quas vento accesserit oras,  
 qui teneant (nam inculta videt), hominesne feraene,  
 quaerere constituit, sociisque exacta referre.

Scan the first two lines.

2 Translate:

Nate dea (nam te maioribus ire per altum  
 auspiciis manifesta fides; sic fata deum rex  
 sortitur volvitque vices, is vertitur ordo),  
 pauca tibi e multis, quo tutior hospita lustres  
 aequora et Ausonio possis considerare portu,  
 expediam dictis; prohibent nam cetera Parcae  
 scire Helenum farique vetat Saturnia Iuno.

Explain the case of dea and the mood of lustres.

3 Write in Latin:—The Helvetians, being induced by need of all things, sent ambassadors to him concerning surrender.

#### GREEK

1 Translate:

Ἐπειδὴ δὲ πάντας παρήλασε, στήσας τὸ ἄρμα πρὸ τῆς φάλαγγος μέσης.  
 πέμψας πύργητα τὸν ἐρμηνεῖα παρὰ τοὺς στρατηγοὺς τῶν Ἑλλήνων ἐκέλευσε  
 προβαλίσθαι τὰ ὄπλα καὶ ἐπιχωρῆσαι ὅλην τὴν φάλαγγα.

(a) Decline *στρατιά*, *δῶρον*, *γέρον*, *οὗτος*, *ὅς*.

(b) Conjugate the aorist tense of *λύω* in all moods and voices.

(c) Compare *σοφός*, *πιστός*, *ἀσφαλής*, *ἡδύς*

(d) Form adverbs from the adjectives just given and compare them.

#### ELEMENTARY FRENCH

1 Give the regular plural formation of nouns: Ex. père; those ending in s, x or z; in au or eu; in al or ail.

2 How do adjectives form the feminine? Ex. petit.

3 Compare belle dame; grand homme.

4 Explain partitive construction. Ex. I have some bread. Explain partitive construction as the object of a negative verb. Ex. I have no bread. Explain partitive construction when an adjective precedes the noun. Ex. I have some good bread.

5 Give a synopsis of the verb finir.

6 Give imperfect tense of donner. Present indicative of finir. Present indicative of avoir.

7 Explain interrogation. Ex. Have you sung?

8 Give different forms of the relative pronouns for who, whom which and that.

9 Count from ten to twenty.

10 Explain the use of the ordinal and cardinal numbers.

11 How do you form the passive voice?

12 How do you keep the *g* soft before *a* or *o* in a —ger verb?

13 Give all the rules you remember for the use of the subjunctive.

14 Give the five principal parts of the irregular verb aller.

Translate into French:

1 My father has four children, two sons and two daughters.

2 My sister is more handsome than my brother, but my brother is taller.

3 The teacher gives work to his pupils and we study.

4 My father is a lawyer, but John's father is a doctor.

5 I dwell in the country. My father has had his farm for ten years.

6 The key that I found in the street last night belonged to a merchant of this city.

7 A man who wishes to speak to you is at the door.

8 I have bought many things in the city, and they will arrive to-morrow.

9 Washington was the first President of the United States.

10 We love one another much, and we visit one another often.

11 I am a Frenchman, but I have been living in a city of Prussia for many years.

Translate into English:

1 Un cheval a deux yeux et quatre jambes. Le cheval est un quadrupède.

2 Le fils a seulement une maison. Elle n'est pas si grande que les maisons de son père.

3 Il punit les grands garçons quand ils parlent trop et les petits quand ils perdent un livre.

4 Beaucoup de garçons étudient la langue française, et le professeur donne des leçons longues à ses élèves.

5 Quand vous aurez fini dix leçons vous passerez un jour à la campagne.

6 Elle demeure avec un de ses fils dans sa plus belle maison à lui.

7 Nous avons deux tables: la table ronde est la mienne, mais la table longue est la sienne.

8 Il y avait dans cette ville un grand château qui était à un roi français.

9 Sous le règne de Louis XVI éclata la grande révolution qui a duré six ans.

10 A six heures et demie il est arrivé. "Comment te portes-tu?" s'écria-t-il.

11 C'est une des plus belles langues du monde, et presque tout le monde l'aime.

#### LES AMOUREUX DE LA PRINCESS MIMI

La princesse Mimi, fille de la reine Cendrillon, était belle comme le jour. Sa figure rose et ses cheveux d'or léger, traversés de soleil, la faisaient ressembler à une rose mousseuse; et elle avait beaucoup d'esprit.

Quand elle eut quinze ans, il fallut la marier; car telle était la loi du royaume.

Mais, comme elle était princesse, elle ne pouvait épouser qu'un prince.

Or il n'y avait alors, dans tout le pays environnant, que deux princes.

Le prince Polyphème, qui était sept fois plus grand que la princesse Mimi, et le prince Poucet, qui était sept fois plus petit qu'elle.

Et tous deux aimaient Mimi d'amour; mais Mimi n'aimait ni l'un ni l'autre: l'un parce qu'il était trop grand, et l'autre parce qu'il était trop petit.

Un jour qu'il n'avait pas mangé, et que Charme-des-yeux, épuisée par le jeûne n'avait pu quitter la natte où elle était couchée, Ali, rôdant par les rues de Damas, comme un loup affamé, aperçut des hommes qui chargeaient des cruches d'huile sur leur tête et les portaient à un magasin peu éloigné. À l'entrée du magasin était un commis qui payait à chaque porteur un para par voyage. La vue de cette petite pièce de cuivre fit tressaillir l'ancien pacha. Il se mit à la file, et, montant un étroit escalier, reçut en charge une énorme jarre, qu'il avait grand peine à tenir en équilibre sur sa tête, même en y portant les deux mains.

## ELEMENTARY GERMAN

- 1 Decline: der Vater, die Mutter, das Dorf.
- 2 Explain a strong adjective. Like what word do you decline it? Give the endings a weak adjective may have. Wherein does a mixed adjective differ from a weak adjective?
- 3 Decline: diese Frau, der alte Mann, ein altes Buch.
- 4 Conjugate: past indicative of haben, past subjunctive of sein, future perfect of sprechen, past subjunctive of haben.
- 5 Give principal parts of: werden, sein, haben, finden, sinken.
- 6 Decline the personal pronouns of the: third person singular masculine, third person plural, first person singular, for polite form of address.
- 7 Explain the difference between a strong and a weak verb.
- 8 Conjugate sich waschen in the present and past indicative.
- 9 Give the principal parts of: dürfen, können, mögen and müssen.
- 10 How do you form the passive voice? Give the present and past passive of loben.
- 11 Explain the position of the separable prefix.
- 12 Count from one to twenty.

Translate into German:

- 1 The Prussians and the Hungarians are Christians.
- 2 Dear sister, thou art the joy of thy mother.
- 3 The green fields are covered with white snow.
- 4 My English dictionary is a good book.
- 5 We shall soon have the most beautiful weather.
- 6 The little child sits upon the bench beside its mother.
- 7 The soldiers ride with me into the town.
- 8 The industrious poor man will become rich.
- 9 The maid-servant has adorned the nursery with beautiful flowers.
- 10 I should read more, if I had more time.
- 11 The coaches of the first class are better than the coaches of the second class.
- 12 They have been obliged to work the whole day.



Translate into English:

- 1 Mein Bruder hat zu Heidelberg studiert.
  - 2 Mein Freund hat mir gesagt, dass er ein Landgut kaufen werde.
  - 3 Der beste Gasthof in unserer Stadt ist am Thore.
  - 4 Wir würden gestern hier gewesen sein, wenn unsere Mutter nicht krank gewesen wäre.
  - 5 Heute werden wir einen Feiertag haben.
  - 6 Mein Bruder hat einen längeren Brief als ich.
  - 7 Hat sie eine englische Grammatik gehabt?
  - 8 Die Studenten der Universität sind in dem Laboratorium des Professors der Chemie.
  - 9 Die verlorene Börse ist von einem Schulknaben gefunden worden.
  - 10 Ich habe jenes Haus verkauft, um ein besseres zu kaufen.
  - 11 Um welche Zeit kommt der Zug von Boston an?
  - 12 Das Dampfboot wird am 21sten nächsten Monats abfahren.
- “Guten Tag, Herr Professor, wollen Sie mir heute etwas von den Gymnasien erzählen?”
- “Na, Ethel, was möchtest du denn über die Gymnasien wissen?”
- “Ach, Sie haben mir neulich von den Volksschulen erzählt. Ich möchte wissen, ob es auf dem Gymnasium ähnlich zugeht.”
- “Nein, das ist etwas ganz anderes. Erstens muss man bezahlen, wenn man die Kinder auf das Gymnasium schickt.”
- “Ja, das habe ich schon gehört. Das sind also eine Art Privatschulen, nicht wahr?”
- “Nein, sie werden alle vom Staate oder von der Stadt gegründet und unterhalten.”
- “Tritt man dort, wie in die Volksschule, mit dem sechsten Jahre ein?”
- “Nein, aufs Gymnasium kommt man erst mit den neunten Jahre.”
- “Was tut man denn, bis man neun Jahre alt wird?”
- “Bitte, Herr Professor, Sie sind in Deutschland viel gereist. Was halten Sie für das Interessanteste?”
- “Ach, mein lieber Herr Clinton, welche eine schwere Frage! Was soll ich darauf antworten?”

“Nun, Sie kennen Deutschland ziemlich genau. Ich bin vor einiger Zeit aus Amerika angelangt. Wollen Sie mir nicht raten, wie ich meine Zeit ausnützen kann?”

“Gern, gern, Herr Clinton. Wie viel Zeit haben Sie denn eigentlich?”

“Leider nur drei Wochen.”

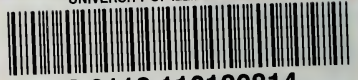
“Was? Drei Wochen! In drei Wochen wollen Sie Deutschland kennen lernen? Verzeihen Sie, Herr Clinton, das finde ich fast unbegreiflich! Ich sage Ihnen, in drei Wochen werden Sie hier mit Berlin und Potsdam nicht fertig.”

“Meinen Sie, dass ich keinen Begriff von dem Lande bekommen kann, wenn ich nur drei Wochen bleibe?”

“Das können Sie wohl, aber ehe ich Ihnen rate, möchte ich gern wissen, wofür Sie sich am meisten interessieren. Die besten Universitäten befinden sich in Berlin, Leipzig, Heidelberg, München, Bonn, Göttingen, Halle, Marburg, Jena und so weiter. Wenn Sie Universitäten besichtigen wollen, so können Sie drei Wochen sehr gut dazu verwenden.”



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